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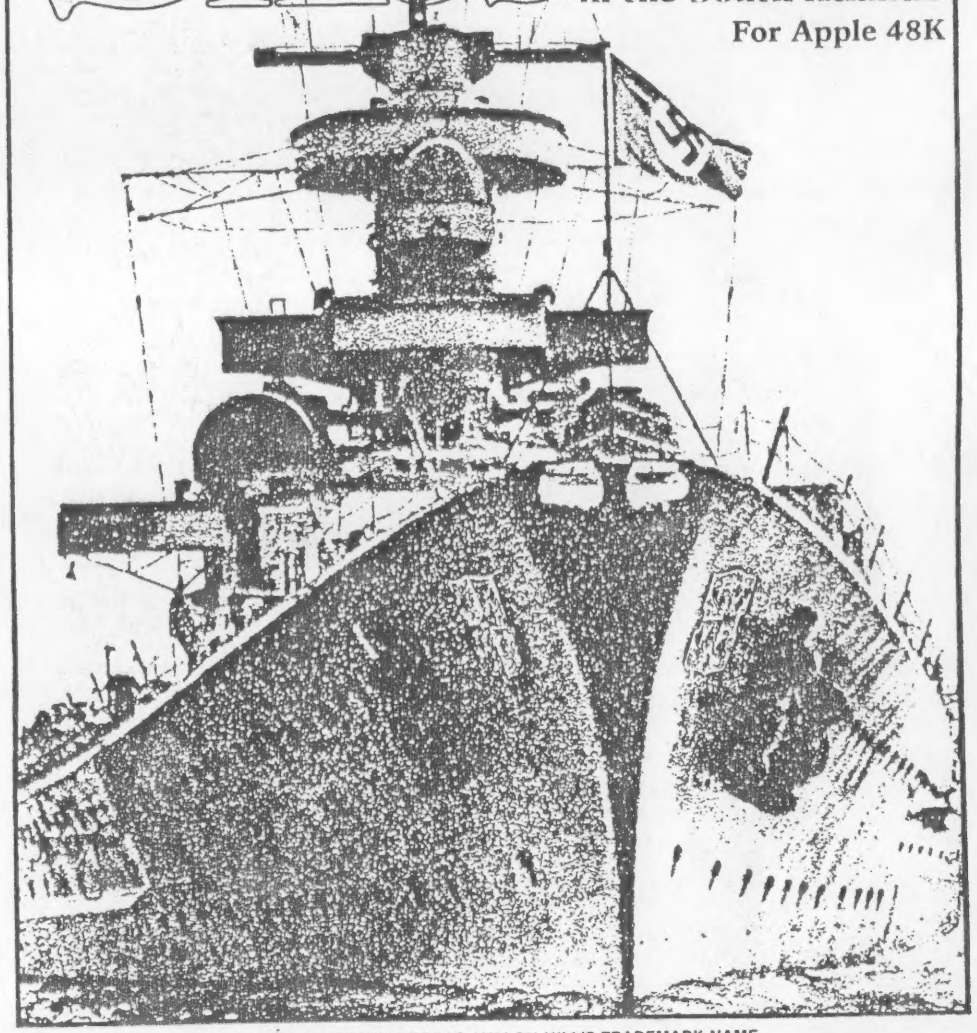
Under Southern Skies

Computer Simulation of WWII Naval Warfare in the South Atlantic

For Apple 48K



UNDER SOUTHERN SKIES IS AVALON HILL'S TRADEMARK NAME
FOR ITS MICROCOMPUTER GAME OF NAVAL WARFARE IN THE SOUTH ATLANTIC

UNDER SOUTHERN SKIES

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UNDER SOUTHERN SKIES

A Game Simulation of the Voyage of the GRAF SPEE

BATTLE MANUAL

1.0 INTRODUCTION

1.1 Overview

This battle manual describes the basic rules and operational commands of the Under Southern Skies computer simulation game. The program provides both a solitaire and two player game simulation. In the solitaire version, the computer is the Admiral in command of the British Forces. You, the Captain of the Graf Spee, have the challenge of out guessing the computer. The battle simulation is played in turns similar to chess. The Captain of the Graf Spee decides and inputs his orders to the computer, then the British player inputs all his orders. The computer performs most of the tedious calculations and exhibits the results on the screen. The use of the computer permits truly "blind" play.

1.2 Loading Instructions

This is an auto-boot diskette. Put the game disk into your disk drive and "boot" the disk.

1.3 Game Options

The program consists of a tactical and strategic game:

The historical recreation of the famous naval battle which took place off the River Plate, in December 1939, between the K.M. Graf Spee and H.M.S. Exeter, Ajax, and Achilles (TACTICAL).

A 15-60 day cruise of the Graf Spee in the South Atlantic. The Graf Spee is hunted by 10 British battle groups including two aircraft carriers. The Graf Spee's mission is to locate and sink merchant ships without being detected (STRATEGIC).

1.4 Time Frame

The tactical solitaire game takes about 30 minutes to play. The relatively short time frame allows the player to evaluate several different play strategies at one sitting. Play balance and variability are assured through the random placement of forces.

The strategic solitaire game requires about two hours to complete which is considerably less than most board games of similar structure. In this game the computer commands the British Forces. The two player strategic game will require more time..

1.5 Computer Interface

Each turn the computer requests the operational orders from both the German and British player. Responses to computer inquiries are input via the keyboard followed by pressing the "RETURN" key. Responses by either player that are out of range of the command list will result in repeating the request by the computer. While one player inputs his commands for the turn, the other player should move away to insure secrecy. After both players have given their instructions they can watch the screen for the results. The computer will display on the screen from time to time specific data relevant to the situation.

In the two player option, the map board does not display ship locations until after movement. This prevents "accidental" observations by opposing players. It is recommended that security precautions be observed to minimize unauthorized access to ship data.

2.0 GENERAL INSTRUCTIONS: STRATEGIC GAME

2.1 Time Period

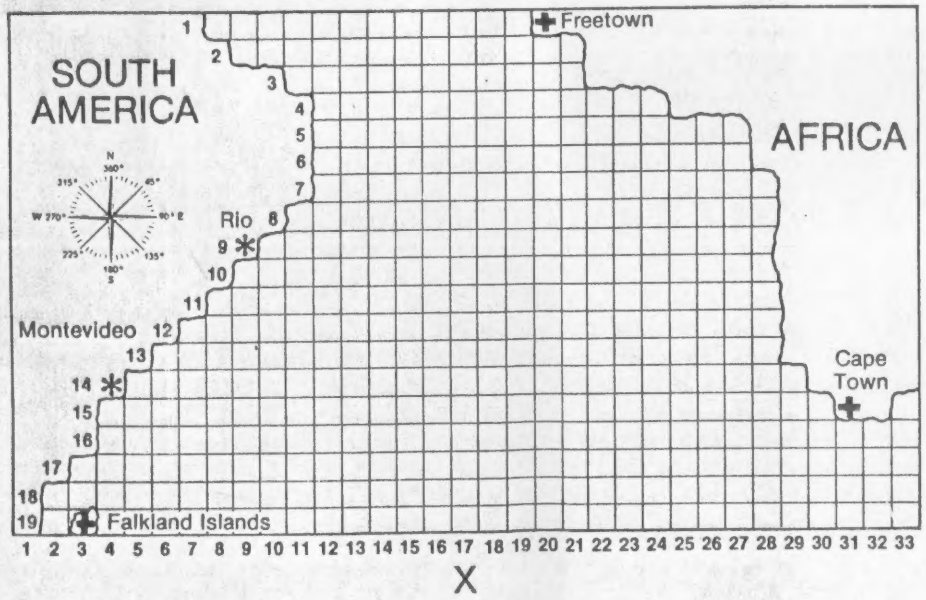
The cruise of the Graf Spee takes place over a 15-60 day period starting in December 1939. Each strategic turn constitutes twelve hours so that there are two turns per day (AM/PM). The total maximum number of turns for a complete simulation is 120.

2.2 Search Board

A search board map depicting the South Atlantic is stored in the computer. The map is divided into a 200 mile square coordinate system (see map below). These squares are called Sea Zones. Each Sea Zone can be identified individually via the coordinate system. For example, the Port of Rio is located at X=9, Y=9. Each zone can accommodate as many ships as are available. The map also shows the coasts of Africa and South America. Five ports (three British and two neutral) are shown by a "+" and a "*", respectively.

Neutral	Location (X,Y)	British	Location (X,Y)
Montevideo (*)	4,14	Cape Town (+)	31,15
Rio (*)	9,9	Falkland Islands (+)	3,19
		Freetown (+)	20,1

STRATEGIC GRAPHIC MAP



2.3 British Forces

The following table identifies the Battle Groups available to the British Commander.

Ships	Ship Type	Armament	Max. Speed*	Target No.	I.D.
Exeter	CA	6-8"	30	3	E
Ajax	CL	8-6"	30	4	J
Achilles	CL	8-6"	30	5	L
Cumberland	CA	8-8"	30	6	C
Sussex	CA	8-8"	30	7	S
Shropshire	CA	8-8"	30	8	H
Neptune	CL	8-6"	30	9	N
Dupleix (Fr.)	CA	8-8"	30	10	D
Ark Royal†	AV	–	30	–	K
Renown†	BB	6-15"	30	–	K
Screen†	DD	–	30	–	K
Hermes‡	AV	–	30	–	T
Strasbourg (Fr.)‡	BB	8-13"	30	–	T
Screen‡	DD	–	30	–	T

SHIP TYPE KEY: CA-Heavy Cruiser; CL-Light Cruiser; AV-Aircraft Carrier; BB-Battleship; DD-Destroyer Escorts

*Cruiser groups have a full flank speed of 32 knots for tactical simulation.

†Ark Royal Aircraft Carrier Task Force.

‡Hermes Aircraft Carrier Task Force.

2.4 German Forces

The German Forces consist of the "Pocket Battleship" K.M. Graf Spee (Guns–6×11", 8×5.9"; Max. Speed–25 knots) and the supply ship Altmark (A). The Altmark carries sufficient diesel fuel to supply the Graf Spee over the cruise. Fuel for the Graf Spee (G) is also available from the two neutral ports.

2.5 Starting Positions

On the initial turn the Graf Spee and Altmark are randomly placed on the map board. The Altmark's initial position is confined to near the bottom of the board. The British forces are randomly placed within the coastal areas.

2.6 Alternative Battle Scenarios

Additional tactical battle scenarios can be simulated by using the two-player strategic game. The specific ships of interest can be moved to the square occupied by the Graf Spee. The computer will transfer to the tactical simulation and the specific battle scenario can be fought.

3.0 OPERATIONAL COMMANDS (STRATEGIC)

STRATEGIC
COMMAND SUMMARY

INPUT	GERMAN	BRITISH
Ø	Patrol	Patrol
1	Course & Speed	Course & Speed
2	Altmark Resupply	Ship Location
3	Sink Merchantman	Ship Fuel/Damage
4	Status Report	–
5	Altmark Movement	–

Ø Patrol
Orders the Graf Spee or British Battle Groups to patrol its current sea zone. Patrolling gives a better chance of finding the target vessel (i.e., Graf Spee for the British or a merchant ship for the Germans).

1 Change Course and Speed
Changes in course and speed are entered for the Graf Spee, Altmark and British Battle Groups. Various speeds for each unit are possible depending on weather and damage (see Section 6.0). Movement off the map or to a Coast square is not permitted. A change of course is given in degrees.

2 Resupply from Altmark (German only)
Resupplies Graf Spee from Altmark. At option of German captain limited repairs to battle damage may be undertaken.

3 Sink Prize Ship (German only)
German captain has the option of sinking an Allied merchantman by torpedo (1) or gunfire (2).

4 Status Report
Displays grid location, fuel reserves and damage status for both the Graf Spee and each British Battle Group.

5 Altmark Movement (German only)
At the *beginning* of the game and during each rendezvous with the Graf Spee the German captain may establish the next rendezvous point for the Altmark. The Altmark will then set course to the established point after resupplying the Graf Spee.

The Altmark will remain in the same sea zone if a rendezvous point is *not* specified. The Graf Spee may also redirect the Altmark by radio. Radio transmissions by the Graf Spee, however, are always picked up by the British.

2 Ship Location (British only)
Displays location of British Battle Group currently under British Control on the Strategic Map.

3 Ship Fuel/Damage (British only)
Displays fuel and damage status of British Battle Group currently under British control.

4.0 TACTICAL COMBAT

4.1 The following describes the various commands. An "*" indicates that this command does not use up a turn. In the Solitaire game, the British cruisers are moved by the computer. Each tactical turn simulates one minute of real time.

Ø Continue Previous Course and Speed

1 Change Course and Speed
Player indicates course heading (0-360) and speed in knots. For the initial turn of the game the maximum speed is 15 knots. The maximum speed for the Graf Spee is 25 knots and 32 knots for the British cruisers. If the bridge is "knocked out" then steering is transferred to Aft control which requires one turn. No change in course is possible during this period.

2 Select Target Guns (Graf Spee only)
The player selects the target of his main guns among available ships. Input the target's number (see chart 2.3). Change of course of more than 10 degrees requires retargeting. The player selects the target of port and starboard guns among available ships (input target's ID number). Changes in the Graf Spee's course and enemy movement does not require retargeting of secondary guns.

3 Fire Main And Secondary Guns (Graf Spee Only)
Main and Secondary guns are fired at target (previously selected using command #2 above). If guns are not targeted, or out of action, then they cannot fire.

4 Launch Torpedoes
Player can launch torpedoes every 10 turns. Player gives target I.D. code. Probability of obtaining a hit is a direct function of enemy speed and range.

5 Disengage
Permits either side to withdraw if the range between the Graf Spee and the closest British warship is greater than 28,000 meters. Upon disengagement the battle reverts to the strategic simulation or concludes the tactical simulation.

6 Damage Control Report*
Provides the player with a damage status for each of the ten stations of the ship under command and compares with maximum limits.

7 Display Course and Speed*
Displays the ship's course, bearing, speed (knots) and range (meters) from Graf Spee to a maximum of 25,000 meters. The bearing readings are true with 0° at the top of the screen. You must input the enemy ship's number (see chart 2.3).

4.2 In addition both sides can make smoke during a change of course. The effects of smoke lasts three minutes. Making smoke reduces the effectiveness of gunnery on both sides by about 10 percent for the ship making smoke and 25 percent for the other side. The impact of smoke on the attacker's gunnery is computed as a function of wind speed and direction.

4.3 The maximum time for the tactical simulation is 60 turns. The tactical simulation is terminated when either the British cruisers or the Graf Spee are sunk or either side has withdrawn or after 60 turns has expired.

4.4 At the termination of a tactical battle (Strategic Game) the simulation reverts to the strategic map display with the same date (AM/PM) as prior to the tactical encounter.

5.0 SHIP MOVEMENT

5.1 The Graf Spee, Altmark and each battle group can move once per turn. To move a unit, the commander indicates the desired course and speed.

5.2 The following Table outlines the various speeds available to the German and British commanders.

Speed (knots)	Graf Spee Effect	Speed (knots)	Battle Groups Effect
10	Remain in same zone for maximum search effectiveness	10	Remain in same zone for maximum search effectiveness
15	Move one sea zone	15	Move one sea zone
25	Move two sea zones	30	Move two sea zones

5.3 The Graf Spee may only move two sea zones once each day. The Altmark may move a maximum of one sea zone per day. The Graf Spee may not leave a port at high speed (25 knots).

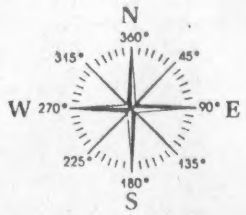
5.4 High speed for either side is not possible during rough seas or foggy weather.

5.5 The following table indicates the relationship between midship hits (damage) and maximum speed (Strategic Game) for the Graf Spee and Cruiser Groups:

Graf Spee		Cruisers	
Midship Hits	Max Speed (kts)	Midship Hits	Max Speed (kts)
10	25	10	30
35	15	25	15
40	10	30	10

5.6 The following illustrates the course diagram used in moving.

For example, to move into the sea square above your current position you would enter 0 or 360 then a speed (of at least 15 kts to move one sea zone).



5.7 Each unit begins with an initial allocation of fuel (measure in tons). Fuel is consumed each turn according to the table below:

	SPEED (KTS)			
	10	15	25	30
Graf Spee	15	35	90	–
Cruisers	20	45	–	180
Carrier Groups	50	110	–	450

5.8 Movement is not possible if a unit's supply of fuel drops below 50 Tons for cruiser and 125 tons for Carrier Groups.

5.9 The most economical movement speed is 15 Kts. High speed movement consumes fuels at a rate approximately four times cruising speed. The Graf Spee can remain in a neutral port by indicating a speed of 10.

5.10 Movement by either side off the map is not possible. Attempting to move off the map or onto land results in the following computer generated message:

* * * ILLEGAL MOVE * * *

The position of ship involved in the illegal move is returned to its previous location and the ship loses its turn.

6.0 AIRCRAFT CARRIER GROUP OPERATIONS

6.1 The British have available two aircraft carrier groups centered around the Ark Royal and Hermes.

6.2 Carrier Groups have the capability of searching their current Sea Zone as well as the *EIGHT* surrounding zones. The probability of locating the Graf Spee if aircraft are in the same zone is 90 percent. Carrier air search is not possible during fog.

6.3 The Ark Royal may launch two air strikes against the Graf Spee per day (AM/PM). The Hermes may launch one air strike per day (AM). Carrier air strikes are not possible during fog.

6.4 A single air attack on the Graf Spee will result in zero to two torpedo hits (midships). If the Graf Spee is being repaired from the Altmark during an air attack she will receive three torpedo hits.

6.5 During an air attack the Graf Spee's Captain can exercise one of two tactical options: 1) Turn to port (left), 2) Turn to starboard (right). The probability of receiving a torpedo hit is a direct function of max ship speed, sea state, ship mode (e.g. repair mode), and turn option. In the two player game the British air commander also selects either a port or starboard attack profile. If both players select the same option (i.e. turn port and attack port) then the probability of obtaining a hit increases. If one player selects port and the other selects starboard then the probability of obtaining a hit is less.

7.0 GENERAL AIR SEARCH

Air search from the Falkland Islands, Ascension Islands and South Africa is carried out twice per day (AM and PM). The probability of locating the Graf Spee if aircraft are in the same zone is 90 percent. Air search is not possible during fog. Detection of the Altmark by air search (general or carrier) is not possible. Each British airbase is capable of searching the nine inner and 16 outer zones surrounding the base (a total of 25 zones).

8.0 SHIP SEARCH

8.1 British Battle Groups can search their current sea zone each turn (AM and PM). Surface search is not possible during fog.

8.2 The following table provides the probability of locating the Graf Spee if a Battle Group is in the same Sea Zone. If the Graf Spee has already been located by aircraft the probability of location is 100 percent. Searching is not possible during periods of fog.

	NUMBER OF BRITISH SHIPS			
TURN	1	2	3	4
AM	60%	70%	80%	100%
PM	40%	50%	70%	100%

8.3 In the two player game, if the Graf Spee is located by warships, the British player has the option of engaging or shadowing (see Section 9.0).

8.4 The Graf Spee may search for merchantmen twice per day (AM and PM). The probability of locating a merchant ship is a function of speed, time of day and location. The probability of sighting a merchantman increases with reduced speed, morning operations and nearness to either South America or Africa. Searching for merchantmen is not possible during fog.

8.5 If the Graf Spee is located on the same sea square by Battle Groups K (with Renown) or N (with Strasbourg) she is automatically sunk.

8.6 A merchant ship located by the Graf Spee will successfully transmit its location 75 percent of the time.

8.7 If British warships are located in the same Sea Square as the Altmark there is a 90 percent chance of detecting the Altmark.

8.8 Ship search is not possible during periods of Fog including the location of the Altmark by the Graf Spee.

8.9 The Altmark is automatically sunk if located by British warships.

8.10 Naval action cannot take place in a neutral port. If the Graf Spee remains in a neutral port for more than six turns (3 days) or is located there at the end of the 30 day cruise she is automatically interned.

8.11 British forces are not permitted to enter a neutral port containing the Graf Spee.

8.12 The Graf Spee may not enter a neutral port containing a British warship.

8.13 The Graf Spee is automatically sunk if it enters a British port.

9.0 SHADOWING

9.1 The British player (two player game) has the option after locating the Graf Spee of either engaging in combat or shadowing until additional surface forces arrive.

9.2 Shadowing occurs twice per day (AM/PM) by each cruiser located in the same sea space with the Graf Spee.

9.3 A successful shadow results in locating the Graf Spee after its next move. The cruisers may then move into that sea zone and either engage in combat or continue to shadow.

9.4 The following table presents the probability of a successful shadow as a function of turn and weather conditions.

Probability of Successful Shadow
Weather Conditions

Turn	CALM	ROUGH SEAS	FOG
AM	90%	60%	0
PM	80%	20%	0

9.5 If a lone cruiser finds the Graf Spee, in the solitaire version, it will attempt to shadow until additional forces arrive. A single cruiser will avoid combat with the Graf Spee unless the Graf Spee has been heavily damaged.

10.0 WEATHER

The vagaries of weather have been incorporated into the simulation as indicated below:

Weather State	Condition	Probability of Occurrence	Effect on Operations
1	Calm Seas	50%	None
2	Rough Seas	45%	No sea refueling No high speed* Air attacks halved
3	Fog	5%	No search No high speed No shadowing No air operations

*Except for Carrier Groups
NOTE: Weather patterns can change each turn (AM/PM) and apply throughout the entire South Atlantic.

11.0 SHIP RESUPPLY

11.1 The Graf Spee can be resupplied either from the Altmark or in a neutral port. The Graf Spee receives 2,500 tons of fuel. Resupply requires one turn.

11.2 If the Graf Spee is resupplied in a neutral port, its location is made known to the British. Limited repairs to the Graf Spee's midship zone can be made at a rate of 3 per turn while in port. Repairs cannot reduce the Graf Spee's damage below a minimum of 5.

11.3 Resupply from the Altmark is not possible during conditions of rough seas.

11.4 British Battle Groups can be resupplied from either a friendly or neutral port. If British Battle Groups are resupplied in a neutral port then their general location is made known to the Germans.

11.5 A limited amount of repairs can be undertaken by the Graf Spee during resupply from the Altmark. A total of one damage unit per station is reduced during the repair mode. Repairs require two turns to complete.

11.6 British cruisers can receive repairs at the three friendly (British) ports. A total of one damage unit per station is reduced during the repair mode. Repairs require two turns to complete.

11.7 If the Graf Spee is discovered by the British while undergoing repairs from the Altmark 10 additional midship hits are added to the Graf Spee prior to engaging in Tactical Combat.

12.0 SHIP CHARACTERIZATION

12.1 Armaments

The effect of the light cruisers' shells is normalized at 1. Heavy Cruisers fire shells rated at 2 and the Graf Spee fires at 5. The secondary guns of the Graf Spee are rated at 1. The effective max. range of the Graf Spee's main guns is 20,000 meters and that of the secondary guns 12,000 meters. The effective maximum range of the cruisers is 19,000 meters. A torpedo has a maximum range of 6,000 meters and a damage factor of 12.

12.2 Ship Subdivision

The Graf Spee and each British warship are divided into 10 specific stations as illustrated in the following chart. Each station is assigned a maximum damage hit level. Damage recorded above the maximum level is reassigned to the midships. A ship is sunk

when the midship's maximum has been reached. Ship speed is affected by damage to forward, midship and aft stations. No repairs to these stations are possible during the battle.

GRAF SPEE

STATION	DESCRIPTION	MAX DAMAGE
1.	Forward	4
2.	A Turret (Bow; 3×11")	10
3.	Torpedoes	4
4.	Fire Control	8
5.	Bridge	6
6.	Midships	40
7.	Port Guns (4×5.9")	4
8.	Starboard Guns (4×5.9")	4
9.	B Turret (Stern; 3×11")	10
10.	Aft	4

STATION	CRUISER*							
	3	4	5	6	7	8	9	10
1 (Forward)	3	2	2	3	3	3	2	2
2 (A Turret)	5	3	3	5	5	5	3	4
3 (B Turret)	5	3	3	5	5	5	3	4
4 (Fire Control)	7	6	6	8	7	7	6	6
5 (Bridge)	4	4	4	4	4	4	4	4
6 (Midship)	30	25	25	32	32	32	25	25
7 (Torpedoes)	3	3	3	4	3	3	3	3
8 (X Turret)	5	3	3	5	5	5	3	4
9 (Y Turret)	0	3	3	5	5	5	3	4
10 (AFT)	3	2	2	3	3	3	2	2

*3-Exeter, 4-Ajax, 5-Achilles, 6-Cumberland, 7-Sussex, 8-Shropshire, 9-Neptune, 10-Dupleix (Fr).

12.3 Damage Control

During the course of the battle, limited repairs of specific damaged stations are affected. The extent of any repairs depends on the ship's characteristics and the status of the damage control station.

Repairs on the following stations can be undertaken during battle at a rate of one hit per station every three turns:

GRAF SPEE	CRUISERS
Fire Control	Fire Control
Port Guns	Torpedoes
Starboard Guns	Turrets

12.4 Gunnery

The probability of obtaining a hit is a function of enemy speed, range, number of guns firing and status of fire control. As damage to fire control increases the probability of obtaining a hit decreases. In addition to normal hit damage to the cruisers, there is a 2% chance that the Graf Spee will obtain a "lucky" hit which blows up the target's magazines. The Graf Spee's main guns fire at a rate once per minute and the British cruisers' and Graf Spee's secondary guns fire two rounds per minute. The Graf Spee's main turrets are not damaged by 6" hits. Warships carry sufficient munitions to engage in an unlimited number of tactical battles.

13.0 VICTORY CONDITIONS

13.1 Strategic Game

A point system, based on the following criteria, is used in determining the winner of the STRATEGIC simulation. In both the solitare and two player game, the player with the most accumulated points at the end wins.

GERMAN	
Sinking British merchantmen	10 Points per Ship
Completing 30 day cruise (or more)	10 Points*
Avoiding damage over a 30 or more day cruise	25 Points*
Returning to Germany after 30 or more day Cruise (final location at top of map board)	50 Points
Sinking British warships	30 Points per Ship

BRITISH	
Sinking Graf Spee	100 Points
Damaging Graf Spee	Proportional to midship (100 point max.)
Sinking Altmark	15 Points
Graf Spee is interned in a neutral port	75 Points
Merchantmen	80 Points per 30 day cruise (reduced by 10 points per ship loss)

*Unless in port

13.2 Tactical Game (Historical)

The following points are awarded as a result of tactical combat:

BRITISH		GERMAN	
Graf Spee sunk	100	Exeter sunk	30
Graf Spee damage	Proportional to Midship Hits (Max. 100)	Ajax sunk	30
		Achilles sunk	30
		British Disengage	10

The player with the most accumulated points at the end of the tactical simulation WINS!

14.0 GAME STRATEGY

14.1 Strategic Simulation

German Player

The German Player should avoid the high density (coastal) areas and patrol at 10 kts as often as possible. Remember that a premium is placed on going undetected during the cruise. If you are located by air search or by a merchant ship's transmission you should move away at high speed. If you are discovered by a cruiser group you should attempt to disengage. As the cruise nears an end you should begin to move towards the top of the board. The Altmark should be kept within four to five days sailing of the Graf Spee. The Graf Spee should avoid fueling in a neutral port unless circumstances dictate otherwise.

British Player

The British player needs to undertake an aggressive search pattern. The two carrier battle groups should be positioned in the mid South Atlantic and continually moved. You should use one group to cover the route into the North Atlantic. If you find the Graf Spee you should direct your available forces to that area. The British Commodore should also attempt to find and sink the Altmark. Fuel availability plays an important role in this game. The British should utilize a linear search pattern moving up or down the map board near both coasts.

14.2 Tactical Simulation

German Captain

In the tactical game, the Captain of the Graf Spee must take an offensive posture in order to achieve victory. A defensive approach (e.g. continually steaming away) will normally result in defeat since points are assigned to the British for partial damage to the Graf Spee. The Graf Spee should utilize its superior armament to inflict maximum damage without receiving many hits. However, the German player must decide when to close with the enemy.

In the strategic version, the Graf Spee should attempt to disengage in order to avoid excessive damage, unless the chance of victory is high.

British Commodore (two player option)

The British player should attempt to close with the Graf Spee (Nelson tradition) as quickly as possible to maximize available fire power. This is the strategy used by the computer in the solitaire version. If the Graf Spee's speed has been significantly reduced or its main guns damaged then the British should launch a torpedo attack. If a cruiser has sustained heavy damage, then it should be moved away from the action.

In the text narrative which occurs below the graphics, "Captain and Lieutenant" refer to the German player while "Commodore and Ensign" refer to the British player.

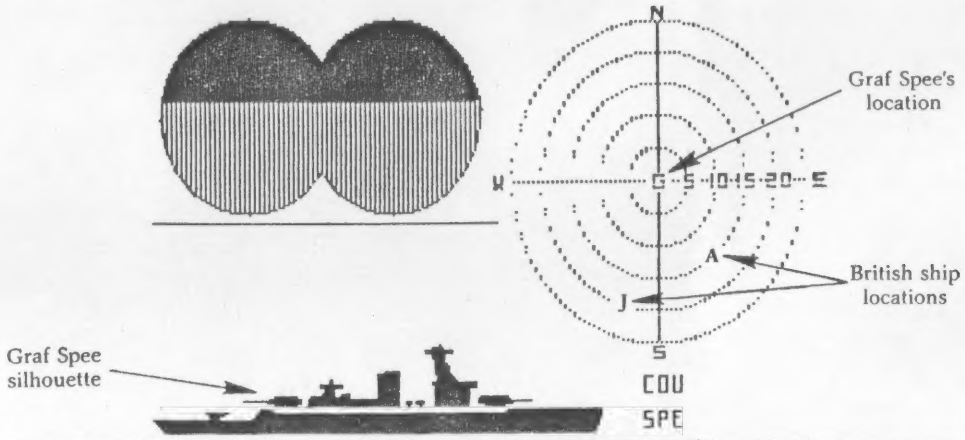
15.0 COMPUTER GRAPHICS

The simulation provides a number of graphic aids to enhance game realism. Computer sounds are also enacted during phases of the battle action.

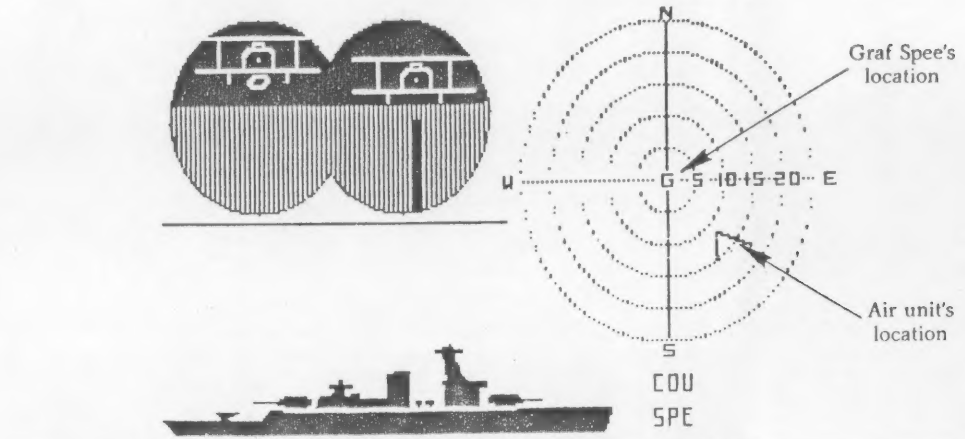
- A strategic graphic board (see map, page 4) which displays a map of the South Atlantic and location of the various ports. Ship movement for both sides is depicted. From time to time estimates of British force locations are flashed on the screen. When the Graf Spee and Altmark are in the same square the screen symbol is shown as □.
- A tactical graphic board is displayed during tactical actions which depicts a silhouette of the Graf Spee (for two player option a silhouette of the British flagship is shown on the British turn), a radar screen showing the relative locations of the fighting ships and a view through binoculars of the enemy. Hits are shown on both the Graf Spee and the cruisers.
- A tactical graphic board is displayed during air attacks against the Graf Spee. This board depicts incoming British aircraft. Hits resulting from the air attack are shown on the Graf Spee's silhouette.

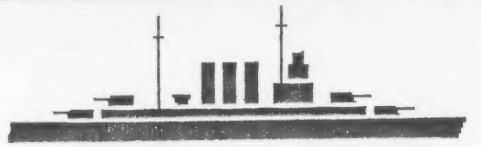
In the tactical simulation hits are visually recorded on both the Graf Spee and British Flagship (only). If the flagship is sunk then a new flagship is assigned. The silhouette for the flagship is the same regardless of the specific selection (Sussex Class). In the strategic simulation the tactical board is displayed when the Graf Spee is under air attack. Hits on the Graf Spee and attacking aircraft are shown.

TACTICAL GRAPHIC BOARD



AIR ATTACK TACTICAL GRAPHIC BOARD





BRITISH SHIP SILHOUETTE